BHARATHIAR UNIVERSITY, COIMBATORE - 641 046
B.Sc. 3D DESIGN & ARCHITECTURE
(For CPP/COP Students Admitted During the Academic Year 2015-2016 & Onwards)
SCHEME OF EXAMINATIONS – CBSC Pattern

Part	Course Title	Inst. hrs/ week	Examination				Credit
			Duration	CIA	Uni Exam	Total	
	Semester - I						
I	Language – I	6	3	25	75	100	4
II	English – I	6	3	25	75	100	4
III	Core 1: Introduction to Design & Design Study	4	3	25	75	100	4
III	Core 2: Principles of Design	4	3	25	75	100	4
III	Core Lab 1: Graphic & Visualization Lab	3	3	40	60	100	4
III	Allied Paper 1: Design History Option I - Architectural History Option II - Design History	5	3	25	75	100	4
IV	Environmental Studies #	2	3	-	50	50	2
	Semester - II						
I	Language – II	6	3	25	75	100	4
II	English – II	6	3	25	75	100	4
III	Core 3: Material & Sources	4	3	25	75	100	4
III	Core 4: Introduction to Sustainable Design & its Practical Application	5	3	25	75	100	4
III	Core Lab 2: Design & Construction Lab: Option I - Furniture Design Lab Option II - Toy Design Lab	2	3	20	30	50	2
III	Allied Paper 2: Design & Construction Option I – Building Construction Option II - Specialist Product Design & Construction	5	3	25	75	100	4
IV	Value Education – Human Rights #	2	3	-	50	50	2

	Semester - III						
III	Core 5: Design Studio I: Option I - Interior Habitat Option II - Materials Exploration	5	3	25	75	100	4
III	Core 6: Design Studio II: Option I - Commercial Interior Option II - Interior Product Design Option III - Product Design Option IV - Toy Design	6	3	25	75	100	4
III	Core Lab 3: Design Studio I Lab: Option I - Interior Habitat Lab Option II - Materials Exploration Lab	6	3	40	60	100	4
III	Applied Paper 3: IEA and Material Analysis Option I - Interior Environmental Analysis Option II - Specialist Material Analysis	6	3	25	75	100	4
IV	Skill Based 1: Design Studio II Lab: Option I - Commercial Interior Lab Option II - Interior Product Design Lab Option III - Product Design Lab Option IV - Toy Design Lab	5	3	30	45	75	3
IV	Tamil @ / Advanced Tamil # (or) Non Major Elective – I: (Yoga for Human Excellence) # / Women's Rights #/Constitution of India#	2	3	50		50	2
	Semester - IV						
III	Core 7: Design Studio III: Option I - Small Scale Contract Option II - Industrial Interior Product Design Option III - Industrial Product Design Option IV - Toy Production	6	3	25	75	100	4
III	Core 8: Design Studio IV: Option I - Retail/ Exhibition Interior Option II - Interior Product & Furnishing Design Innovation Option III - Product Design Innovation Option IV - Toy Design Innovation	6	3	25	75	100	4
III	Core Lab 4: Design Studio IV Lab: Option I - Retail/ Exhibition Interior Lab Option II - Interior Product & Furnishing Design Innovation Lab Option III - Product Design Innovation Lab Option IV - Toy Design Innovation Lab	6	3	40	60	100	4

III	Allied Paper 4: Option I - Lighting Design Option II – Commercial Model Making	6	3	25	75	100	4
IV	Skill Based 2: Project & Dissertation Proposal Lab	4	3	30	45	75	3
IV	Tamil @ / Advanced Tamil # (or) Non Major Elective – II: General Awareness #	2	3	50	-	50	2
	Semester - V						
III	Core 9: Research Methodology	5	3	25	75	100	4
III	Core Lab 5: Negotiated Project Lab	5	3	40	60	100	4
III	Core 10: Reflective Visual Journal	5	3	25	75	100	4
III	Core Lab 6: Dissertation Lab	5	3	40	60	100	4
III	*Elective I:*	6	3	40	60	100	4
IV	Skill Based 3: Model Making	4	3	20	55	75	3
	Semester - VI						
III	Core 11: Professional Practice	6	3	25	75	100	4
III	Core Lab 7: Design & Portfolio Lab	5	3	40	60	100	4
III	Major Project	-	-	-	-	100*	4
III	*Elective II:*	5	3	40	60	100	4
III	*Elective III:*	5	3	40	60	100	4
IV	Skill Based 4: Internship	-	-	-	-	75*	3
V	Extension Activities @	-	-	50	-	50	2
					Total	**3500**	**140**

Elective I	Concept and Inspiration Lab
	Innovation and trend Lab
Elective II	Specialist Materials Exploration Lab
	Products and finishes Lab
Elective III	Client Presentation Lab
	Project Management Lab

$ Includes 25% / 40% continuous internal assessment marks for theory and practical papers respectively.
@ No University Examinations. Only Continuous Internal Assessment (CIA)
# No Continuous Internal Assessment (CIA). Only University Examinations.

***For Project/Internship: 80% Marks for Report & Viva Voce 20% Marks.**

SEMESTER - I
INTRODUCTION TO DESIGN & DESIGN STUDY

Unit 1: Design fundamental
Design as a communication – Design - Characteristics of a good design - visual composition – Elements of design – point - line - shape - form/space - value/tone - texture - colour -Design Process

Unit 2: Principles of design
Principles of design - balance - emphasis - dominance - harmony - unity - contrast - repetition - rhythm - proportion – creativity - importance of creativity - developing creativity - functions of Design – Information – Persuasion - Decoration - Magic

Unit 3: Colour theory
Introduction – basics of colour theory – attributes of colour – hue - value - saturation – colour wheel – colour harmony – colour schemes – achromatic - monochromatic - polychromatic - warm colours - cool colours - analogous colours - complementary colours - split compliments - incongruous - triads and tetrads – colour blending – additive model - subtractive model – colour contrast – colour psychology.

Unit 4: Typography
Typeface anatomy - measurements – typeface classifications – type families – spacing and alignment – selecting appropriate fonts – tips and techniques – Graphics – importance of graphics – types of graphics – vector graphics - raster graphics – image manipulation – format conversion – crop and scale – silhouetting – colour manipulation – edge and transparency – assembling images – filtering – envelope/containers.

Unit 5: Grids and layouts
Role of grids – structure – grid system and templates – layouts – layout guidelines – important parts of a page layout - factors influencing a layout – organizing layouts – capturing readers attention - design process – approach - stages of design process – demonstrations and guidelines.

REFERENCES:

- Led Well, William, “Universal Principles of Design”, Rock Fort Publisher, 2003
- Fraser, Tom,”The Complete Guide to Colour. Ilex”, 2004
- Eisman, Leatrice,” Pantone Guide to Communicating With Color”, Grafix Press, 2000
- Pipes, Alan, “Foundation of Art and Design”, Laurence King. 2008
- Contran, Terence, “Terence Conran On Design”, Conran Publication, 1996
- Recommended Reading
- Lipton, Ronnie, “Designing Across Cultures”, How Design Books, 2002
- Davis, Graham, “The Designer's Tool Kit 1000 Colours”, Chronicle Books, 2007
- Carter, David, E, “The Big Book of Design Ideas”, Collins Design, 2005

PRINCIPLES OF DESIGN

Unit1: Perspective views
Types of perspective views – linear perspectives vs. aerial perspective – perspective terminology – horizon line/eye level - station point - picture plane - vanishing point – linear perspective construction methods - one point perspective - two point perspective - three point perspective.

Unit 2: Understanding of Space
Spatial design – Positive and Negative space – Relation between form and Space – Negative space defined – Why negative space is important – Space and composition – Negative space in type – figure and ground (when negative and positive space compete)

Unit 3: Introduction to Branding
What is brand identity and its importance – Origin and history of brand identity – Case studies – how to do case studies and analysis - Difference between logo- symbol and icon – Introduction to visual literacy – Role of color in branding – Importance of typography

Unit 4: Introduction to textures and materials
Types of materials – Understanding the cuts- folds and structure of different materials– Introduction to packaging – Understanding recycled materials and the printing techniques - Understanding different materials and their applications

Unit 5: 2D and 3D
Introduction to 2D and 3D rendering techniques- drawing orthographic projections for day to day objects.

REFERENCES:

- Drucker J- (1995). The Alphabetic Labyrinth. Thames & Hudson Fink J- Katin J. (1993). Lettering Arts. PBC Int- INC
- Neuenschwander B- (1993). Letterwork. Phaidon Odling-Smee A. (2002). The New Handmade Graphics-Beyond Digital Design. Rotovision. O'Reilly J. (2002). No Brief: Graphic Designer's Personal Projects. Rotovision. Poynor R. (2000). Vaughan Oliver- Visceral Pleasures. Booth-Clibbon.

GRAPHIC & VISUALIZATION LAB

Students are required to draw the following:

- Draw plan elevation and all orthographic projections of an object
- Draw isometric and axonometric views
- Draw related to specialized area of study
- Create a pigment colour wheel
- Create a texture
- Create a scaled model

DESIGN HISTORY:
ARCHITECTURAL HISTORY

Unit 1: Early Classical Period
Prehistoric Cave paintings – Primitive Designs- Interiors during Egyptian- Greek- Roman- Gothic- Early Christian & Renaissance Periods.

Unit 2: Middle ages
Interiors in Romanesque- Gothic- and renaissance periods

Unit 3: Colonial to the beginning of 20th century
Colonial- Victorian designs- Arts & Crafts movement- Art Nouveau- Eclectism- Frank Lloyd Wright.

Unit 4: Bauhaus to post war modernism
Walter Gropius/ Bauhaus- De Stijl- Mies Van Der Rohe- Le Corbusier- Art Deco- Postwar Modernism.

Unit 5: Indian traditional designs
Traditional Styles of design & decorations of homes & accessories across the states in India including Rajasthan- Gujarat- Andhra- Tamil Nadu- Madhya Pradesh etc.

REFERENCES:

- Interior Design Course- Mary Gilliat Coyran- Octopus Ltd.- London
- Interior Design & Decoration- Sherril Whiton- Prentice Hall
- Interior Design- Francis D.K. Ching- John Wiley & Sons- New York
- History of Architecture- Sir Banister Fletcher- CBS Publishers & distributors- New Delhi
- John F. Pile- A history of interior design- 2nd edition- Laurence King Publishing- 2005.
- Jeannie Ireland- History of Interior Design- air child publications- illustrated ed.- 2009.
- Elaine- Michael Dywer- Christopher Mackinnon- Norman A. J. Berisford Denby - A History of Interior Design- Rhodec International- 1983.
- Giedion Sigfried- Space- Time and Architecture: The growth of a new tradition- 4th ed. Harvard University Press- Cambridge- 1962.
- Tadgell Cristopher- The History of Architecture in India: From the dawn of civilization to the End of the Raj - Om Book Service- New Delhi- 1990.
- Rowl Bejamin. Art and Architecture of India.
- Publications on Traditional Arts & Crafts of India- Ministry of Handicrafts Development- Government of India.

DESIGN HISTORY

Unit 1: The styles

What is style? Define the different periods in history and their different styles. Define colloquial styles- contemporary and retro-eclectic and individual styles. Some historical styles are American colonial- Art Deco- Art Nouveau- Shaker- Biedermeir.

Unit 2: Period Style

What is Period Design? - How to use period design in your decor? - It may be in splashes here and there and not in entirety a period design - How to combine modern design with period blended in it? - The common period styles are Edwardian-French Empire style-Georgian- Gothic- Victorian.

Unit 3: History of furniture design

Craftsmanship developed as styles and periods of furniture grew with advent of new materials and techniques Louis 14th- Louis 15th - Louis 16th .Evolution of English Furniture Tudor to gothic-Elizabethan- Jacobean- Common wealth-restoration- William and Mary-Queen Anne- Georgian-Chippendale- regency- Hepplewhite- Adam-Sheraton Victorian-American

Unit 4: Modern Furniture Designers of the 20th Century

Charles Rene Mackintosh- Le Corbusier- Frank Lloyd Wright- Charlotte Perriand- Modern classic furniture from different Periods like 1900 Ingram Street Chair-1902 Hill House Chair-1904 Willow Chair- Charles Rennie Mackintosh.1905 Rocking Chair- Josef Hoffman-1907 Fledermaus Chair- Josef Hoffman- 1908 Armloffel Chair- Josef Hoffman-1908 Robie House- Frank Lloyd Wright Tulip Chair- Eero Saarinen- Marcel Bruer Wassily Chair.

Unit 5: Bauhaus 1919-1933

History of Bauhaus- Walter Gropius and his role in Bauhaus- Innovative product design and colour schemes- Hannes Meyer- Mies Van Der Rohe and their role in furniture design of the Bauhaus School. Paul Klee- Marcel Bruer and their pioneering work for Bauhaus design school.The design principles of Bauhaus School of Thought- their exclusive schemes and how designers shaped the future of Bauhaus furniture.

REFERENCES:

- American Design History: A Bibliography of Sources and Interpretations Jeffrey L. Meikle
- Design History or Design Studies: Subject Matter and Methods Victor Margolin
- THE LITERATURE OF GRAPHIC DESIGN Ellen Mazur Thomson
- A Decade of Design History in the United States 1977-87 Victor Margolin
- Introduction: Graphic Design Histories Michael Golec Design Issues- Vol. 20- No. 4 (Autumn- 2004)- p. 86
- "Arts and Design" (pp. 62-67)
- Bibliography of Canadian Bibliographies Editor: Ernie Ingles University of Toronto Press (December 1994)

SEMESTER - II
MATERIALS AND SOURCES

Unit 1: Wood

Joinery in wood and basic understanding of joints like tenon and mortice- dove tail etc. Other uses of wood like timber openings and frameworks. Furniture in Wood and its modern applications. Allied wooden products- partition boards like plyboards. Wooden accessories and artifacts to be explored.

Unit 2: Aluminium

Sections of aluminium for doors and windows- partitions frames and boards. Temporary Roofing using Aluminium sheets.Aliminium joinery and related products like aldrops and tower bolts and hinges.Detailing of aluminium sections and drawn metal sheets and frameworks.

Unit 3: Ceramic Products

Basically ceramic products include various types of tiles - wall- floor- roofing etc. Tiles may be of a variety of different colours and textures and have a wide range of applicability in interiors as well as exteriors. Other ceramic products include artifacts and accessories. Interlocking of tiles and jointing can be studied.

Unit 4: Textiles

Textiles may be used in a wide variety of places like curtains and shears. Use of motifs and patterns on textiles- applications like screens and partitions in acoustics use textiles. Block printing and kalamkari art are applied on textiles for an artistic representation.

Unit 5: Glass

Glass is widely used decoratively and also structurally Understanding the applications of glassworks- how to draw hot and cold glass. Making hand painted glass windows- hand drawn glass artifacts- coloured and textured glass.

REFERENCES:

- M. I. Ojovan (2004). "Glass Formation in Amorphous SiO_2 as a Percolation Phase Transition in a System of Network Defects". *JET*. (PDF). Retrieved 2012-05-15.
- AR-GLAS Schott- N*P Letters* **79** (12): 632–634. Bibcode:2004JETPL..79..632O. doi:10.1134/1.1790021.
- B. H. W. S. de Jong- "Glass"; in "Ullmann's Encyclopedia of Industrial Chemistry"; 5th edition- vol. A12- VCH Publishers- Weinheim- Germany- 1989- ISBN 978-3-527-20112-9- pp. 365–432.
- Heinz G. Pfaender (1996). *Schott guide to glass*. Springer. pp. 135- 186. ISBN 978-0-412-62060-7. Retrieved 8 February 2011.
- Corning- Inc. Pyrex data sheet.A.- Inc data sheetMichel W. Barsoum (2003). *Fundamentals of ceramics* (2 ed.). Bristol: IOP. ISBN 0-7503-0902-4.
- R. Uhlmann- Norbert J. Kreidl- ed. (1991). *Optical properties of glass*. Westerville- OH: American Ceramic Society. ISBN 0-944904-35-1.
- "PFG Glass". Pfg.co.za. Retrieved 24 October 2009.
- Werner Vogel (1994). *Glass Chemistry* (2 ed.). Springer-Verlag Berlin and Heidelberg GmbH & Co. K. ISBN 3-540-57572-3.
- Thomas P. Seward- ed. (2005). *High temperature glass melt property database for process modeling*. Westerville- Ohio: American Ceramic Society.

INTRODUCTION TO SUSTAINABLE DESIGN AND ITS PRACTICAL APPLICATIONS

Unit 1: Introduction

Concept and Definition – 1970; Stock home Declaration – 1972 ; Brunt land commission – 1987; Earth summit – 1992 (UCED).Environmental impact on human development related activities due to population growth- pace of urbanization- increase in consumption of energy- natural resources- waste generation- deforestation and pollution.

Unit 2: Impact of construction Industry on environment

Depletion of Earth's resources- minerals and energy- towards anthropogenic Climatic changes- towards hotter and drier- Desertification- Coastal flooding and erosion- Water shortage - decline in water quality- Food security- threatened- Imbalance in Eco system.

Unit 3: Global initiative and major achievements

RIO DECLARATION-Agenda – 21 – Forest principles - legally binding conventions- the need: Governments' commitments -priority areas.

Unit 4: Action planning towards sustainable architecture

Appropriate Policy framework for sustainable planning and development- Selection of land for human settlement and quarrying- Reduction of construction activities in eco sensitive zone.Selection and use of timber from sustainability managed forest. Integrated waste management policy and system- segregation- collection- recycling- treatment and disposal at sustainable managed site. Integrated Energy- water- construction materials and technology- management policy- framework for built environment waste management policy framework.Sustainable building material Technology options. Application of concept of Green architecture- Agile architecture- LEEDSrating.- TERI rating system- Building automation etc

Unit 5: Sustainable planning and policies

Government policies- programmes and actions - Action by architects and designers-Action by builders/ promoters - Awareness programme - Case studies /workshops - Sustainable City Planning initiatives.

REFERENCES:

- Bioclimatic Architecture" ENEA and IN/ARCH Publication Edition- 1990.
- "Wealth from waste" – TERI - 2005.
- Steele- James ("1997) Sustainable architecture: principles- paradigms- and case studies- McGraw Hill.
- Gauzin-Muller- Dominique (2002) Sustainable Architecture and Urbanism:Concepts- Technologies and Examples- Birkhauser
- Vallero- Daniel and Brasier- Chris (2008) Sustainable design : the science of sustainability and green engineering- Hoboken- N.J. : John Wiley
- Mostaedi- Arian (2002) Sustainable architecture: low tech houses-CarlesBoto I Comera
- Wright- Richard T. (2008) Environmental science : toward a sustainable future- Upper Saddle River- NJ : Pearson
- Guest editor Jay Yang [eBook] (2008)- Bradford- England : : Emerald Group Publishing

DESIGN AND CONSTRUCTION LAB:
FURNITURE DESIGN LAB

Design a furniture considering the following instructions

- Designing of furniture and joinery
- Appropriate use of material, aesthetics and durability
- User interaction factors such as visual cues and psychological responses for the furniture.
- Historical analysis of the role of furniture.
- Adaptation of Style and trend in furniture.

DESIGN AND CONSTRUCTION LAB:
TOY DESIGN LAB

Design a toy considering the following instructions

- Designing of toy
- Appropriate use of material, aesthetics and durability
- User interaction factors such as visual cues and psychological responses for the toy.
- Historical analysis of the toy design
- Exploration of ergonomics if the toy is larger than life or life size
- Adaptations of game play theory.

DESIGN AND CONSTRUCTION:
BUILDING CONSTRUCTION

Unit 1: Walls and types of masonry
Different types - Stone walls – random rubble- coursed rubble- square rubble- polygonal rubble & Ashlar etc Brick masonry -Types of bonds - single & double Flemish bond- header bond- stretcher bond- rat trap bond- ornamental bonding.

Unit 2: Floors
Floor coverings- - softwood- hardwood- resilient flooring - linoleum- asphalt tile- vinyl- rubber- cork tiles - terrazzo - marble & granite – properties- uses & laying. Floor tiles- ceramic glazed- mosaic and cement tiles- properties- uses and laying- details for physically handicapped.

Unit 3: False ceiling
Construction of various kinds of false ceiling such as thermacol- plaster of paris- gypboard- metal sheets- glass and wood Construction of domes- vaults- & other special ceilings

Unit 4: Wall Paneling / Glass
Paneling – Using wooden planks- laminated plywood- cork sheets- fibre glass wool & fabric for sound insulation and wall paneling for thermal insulation./ Glass and glass products – Composition and fabrication of glass- classification- types of glass- wired glass- fiber glass-

rock wool- laminated glass- glass concrete blocks - their properties and uses in buildings. Commercial forms available – their physical and behavioral properties- tools and technology of its application in built forms. Material and workmanship- specifications.

Unit 5: Arches Lintels and Staircases
Types of arches: semicircular- flat- pointed- Horseshoe- tudor- ogee- equilateral- elliptical- segmental arch. Types of Brick lintel- RCC - wooden lintels- stone etc. - Types of staircases: straight flight- doglegged- spiral- ellitical- cantilevered- helical- l- shaped and t- shaped

REFERENCES:

- Dr. B.C Punmia - building construction - Laxmi publications Pvt. Ltd.- New Delhi- 1993.
- M.S Shetty - concrete technology - S. Chand & co . Ltd .- New Delhi - 1986 .
- S.C Rangwala – engineering materials – Charotar publishing- Anand 1982
- W.B Mckay- building construction- VOL 1-4 - Longmans- u.k 1981
- Laxmi publications Pvt. Ltd.- New Delhi- 1993

DESIGN AND CONSTRUCTION:
SPECIALIST PRODUCT DESIGN AND CONSTRUCTION

Unit 1: Product Design
Understanding design and design spectrum; understanding product configuration and component relationship; Product attribute- function and emotion; Introduction to design research; product analysis – diachronic and synchronic; understanding and analyzing context – parallel and future; understanding modularity and modular systems – 3d lattice and structures; Human Centric Design & Design thinking

Unit2: Product Interface Designing
Understanding concept of user and product touch points; investigation and study of visual-functional and ergonomics requirements of control and display interface;

Unit3: Material exploration
Exploration into Properties of material; understanding product application and material; classifying material based on source and application; understanding manufacturing-fabrication and assembly process; understanding to quantifying and costing of material; understanding use of material at industrial and domestic level; exploring combination and mixing of material.

Unit 4: Form Exploration
Introduction to 2D & 3D - Radii manipulation - Exploration of surface textures - Form transition - Exploration of form - Use of metaphors - Concept of family of forms - Introduction to 3D geometry - cube- tetrahedron- octahedron etc - their imaginative use - complex forms and structures - Use of combinatrics - Form- material and process relationship - Form exploration - Expressions in Form like soft- hard- warm- cold- precise- gross -delicate - strong- fragile- rugged etc. - Study of product expressions - form- proportion- colour-texture etc - Introduction to abstraction - Study of 3D abstraction in art and sculpture - Creative process in Craft. - process and Form. Creative exploration.

Unit 5: Ergonomics in design

concept of system design - product design- Analysis of MME system design- interface design- Design methodology- Body dimensions and its application - Dimensional optimization - The musculo-skeletal system - joint motion study- biomechanical stresses - Effect of stresses - Design biomechanics - Work posture analysis- Static and Dynamic work- The visual - Design for the physically challenged - Controls and display Psycho physiological aspects of design - Ergonomic data generation- Case analysis – Electrophysiology - Design and human behavior- visual behavior analysis - Ergonomics of human energy expenditure and its application - Psycho-physical analysis of product- paired comparison test.

REFERENCES:

- Jones- J.C : Design methods: Seeds of human futures- Wiley inter science- London- 1992.
- Gorb- Peter- Ed. Living by Design- Lund Humphries- London 1978.
- M.M Andereasen- Integrated Product Development- IFS Publications Ltd. / Springer Verlag- Berlin- 1987.
- Asimow Morris; Introduction to Design- Prentice Hall- Englewood Cliffs- N.J.- 1962.
- Pulos- Arthur- The American Design Ethic- MIT- USA- 1983.
- Roozenburg and Eekels- Product Design: Fundamentals and Methods- Publisher: John Wiley & Sons Inc; New Ed edition- 1995
- Ulrich- Karl T.- Eppinger- Steven D.; Product Design and Development- McGraw-Hill 1995- 2000- 2004
- Goodrich- Kristina; Design Secrets: Products: 50 Real- Life Projects Uncovered - Industrial Designers Society of America- Publisher: Rockport Publishers June 2001
- Cagan- Jonathan; Vogel- Craig M.; Creating Breakthrough Products: Innovation from Product Planning to Program Approval- Publisher: Financial Times Prentice Hall; 2002
- Rouse- William B.; Design for Success: A Human- Centered Approach to Designing Successful Products and Systems- Publisher: Wiley-Interscience; 1991
- M. S. Sanders and Ernest J. McCormick: Human Factors in engineering and Design- Sixth Edi.-McGraw-Hill International Editions- 1987.
- P.O. Astrand and K. Rodahl : Textbook of work physiology- McGraw Hill- New York- 1970.
- West- J.B. Et. AI : Best and Taylor’s physiological basis of medical practice- 11th Edn.-Williams and wilkins- “Baltimore- 1985

SEMESTER - III
DESIGN STUDIO 1:
INTERIOR HABITAT

Unit 1: Design Philosophies
Exploration of design philosophies like semiotics- phenomenology- marxism- post structural cultural theories- post modernism- deconstruction- fractals etc and their implications in design.

Unit 2 : Anthropometry and ergonomics
Understanding of the standards in anthropometric study of humans in spaces- their behaviour and actions according to the cues in the built environment

Unit 3: Conceptualization
Arriving at a suitable concept after proper research into the philosophies- user needs- client brief and idea generation principles . The concept should be an all encompassing solution to the design problems.

Unit 4 : Spatial evolution
Ideation- mind mapping to trace the evolution of spatial arrangements and circulation and zoning within the built environment

Unit 5 : Colour and textures
Application of colour theory and colour wheel principles and texture boards according to the mood of the environment.Study of textures from nature and man made environmnets and suitability of those textures in the design.

REFERENCES:

- Designs for 20th century Interiors – Fiona Leolie- VH Publications- London- 2000.
- Interior Design; The New Freedom- Barbaralec Diamonstein- Rizzoli International Publications- New York- 1982.
- Interior Colour by Design- Jonathan Poore- Rockport Publishers- 1994.
- Worldwide Interiors – International Federation of Interior Architects & Designers- Rikuyo-Sha- Japan- 1987.

DESIGN STUDIO 1:
MATERIALS EXPLORATION

Unit 1: Metal Works and Interiors
Types of metals and its properties-definitions of terms with reference to properties and uses of metal. Various methods of working with metals-fixing- joineries- finishing and treatment of metals- finishes on metals- standard specifications.

Unit 2: Ceramic clay and decorations
Types of ceramic. Ceramic clay and carving. Use of ceramic clay with other materials-cloth-thread- wires etc.-process and techniques of forming and decorating-slab work- throwing-pinching and coil work and firing process. Pigments and glazes on ceramic. Tiles and its interlocking characteristics. Introduction to molding- plasters as material- process of mixing and its use in reproduction.

Unit 3: Development of textile design
Development of textile design from primitive art to contemporary designs.-the elements and principles of textile design-analysis of a motif-pattern as a basic unit of design in textile printing-block printing-developing block- understanding materials and treatments-use of dyes and their mixing process-textile dying and printing-screen printing-design evolution for wall hanging-preparing screen and understanding the technique-printing on paper and printing on fabric-related exercises.

Unit 4: Design with glasses
Properties of glass-types of glass-understanding of the possibilities and limitations of hot and cold glass working processes-knowledge and skills in the use of basic tools-techniques and processes sufficient to develop a work from concept to finished object-basic understanding of the industrial applications of glass working techniques-introduction of glass composition-colouring-mold preparation-casting-surface decoration-sand blasting-grinding-polishing – blowing.

Unit 5 : Design with clay products
Introduction to developments of clay product-types of clay product-types of clay-process-shaping-modeling-molding-coil work-throwing-potter's wheel method-detailing-carving-firing with low temperature-colouring-related exercises.

REFERENCES:

- Polly rothenburg- complete book of ceramic art- London- George Allen&unwin ltd
- Illustration today- international text Book Company- printed in US-1993
- Furnish-furniture and interior design for the 21st century –Sophie Lovell
- Handbook of human factors and ergonomics-gavriel salvendy

DESIGN STUDIO II:

COMMERCIAL INTERIOR

Unit 1: Offices/Retail/Malls/Educational Institutions
The layout for commercial design may range from retail design to display-Offices/Retail/Malls/Educational Institutions

Unit 2: Layout
Preparation of the commercial layout takes into consideration the philosophy of the client and his pre existing or new branding of the space. The layout by itself reflects on the built environment and its rules and regulations visually defining boundaries to the existing

Unit 3: Visual perimeters
The design of display and shop fronts has a great deal to do with visual regulations and principles with remarkable precision and spatial management within its restrictions

Unit 4: Colour and texture
The basic colour wheel does not stop our creativity in retail design and commercial spaces-In many cases the colour reflects the entire branding experience. The textures and treatment of the walls gives illusions to the restricted spaces

Unit 5: Future expansion
The design should always cater to what may happen in the future especially lots of space for future development should be allocated and standards must be stuck to especially with the provision of enough head room in the floors.

REFERENCES:

- Interior Design; The New Freedom, Barbaralec Diamonstein, Rizzoli International Publications, New York, 1982.
- Designing Commercial Interiors: Christine M. Piotrowski, Elizabeth A. Rogers, IIDA Wiley, 04-Jan-1999
- Designing for privacy and related needs Julie Stewart-Pollack,Rosemary Menconi 2005
- Designing Sustainable Residential and Commercial Interiors - Applying Concepts and Practices Lisa M. Tucker 09-11-2014 ISBN 9781609019884

DESIGN STUDIO II:
INTERIOR PRODUCT DESIGN

Unit 1: Visual Appreciation
Color composition; understanding positive and negative space; decoding elements around us into 2d geometry; memory sketching; Design Communication; Color Psychology.
Appreciation of art and all visual media through semiotic studies.

Unit 2: Principles of Design & Cultural context studies
Understanding the history of Design in context to culture- politics & demography; Introduction to Design research- process and documentation; Product analysis; Understanding global trend – study on empathy and emotion in design; environmental & society perception (Design anthropology); Symmetry and proportion; Geometry product analysis – diachronic - synchronic.

Unit3: Material Exploration
Understanding material science & its composition; market study of related material; material research and investigating material values; Investigation in Modular system and prefabrication; Product configuration and component relationship; Exploration and investigation into 3d printing; Understanding advance construction material and practice.

Unit 4: Ergonomics in design
Anthropometric – (understanding human scale and proportion with reference to interior products and their innovation; understanding history of ergonomic consumer and exploring products in current market); Understanding material properties wrt. to ergonomics; understanding human psychology and efficiency in space; Concept of dynamic and static space. Design for handicapped people

Unit5: Specialized Study
Accessory Design – Understanding different medium for model making; applying the knowledge of material- ergonomics and design theory to create accessories – detailed report and a physical model.

REFERENCES:

- Ching- Frank (Francis D.K.)- Architectural Graphics- Van Nostrand Reinhold- New York 1975; 2nd ed. 1985; 3rd ed. 1996; 4th ed. John Wiley- New York 2003; 5th ed. 2009 ISBN 0-471-20906-6
- Ching- Frank (Francis D.K.)- Architecture: Form- Space & Order- Van Nostrand Reinhold- New York 1975- 2nd ed. 1996- 3rd ed. John Wiley- Hoboken 2007; ISBN 0-471-75216-9
- M. S. Sanders and Ernest J. McCormick: Human Factors in engineering and Design- Sixth Edi.-McGraw-Hill International Editions- 1987.
- P.O. Astrand and K. Rodahl : Textbook of work physiology- McGraw Hill- New York- 1970.
- Jones- J.C : Design methods: Seeds of human futures- Wiley inter science- London- 1992.
- Gorb- Peter- Ed. Living by Design- Lund Humphries- London 1978.
- Byers- Mel; The Design Encyclopedia- Publisher: John Wiley & Sons Publications- 1994
- Buchanan- Richard; Margolin- Victor; Discovering Design : Explorations in Design Studies- University Of Chicago Press- 1995
- Margolin- Victor; Buchanan- Richard; The Idea of Design- Publisher: The MIT Press- 1996

DESIGN STUDIO II:
PRODUCT DESIGN

Unit 1: Introduction
Concept and definition-1970 –stock home declaration-1972-brundland commisiion-1987-earth summit 1992-(UCED).environmental impact on human development related activities due to population growth-pace of urbanization-increase in consumption of energy- natural resources-waste generation-deforestation and pollution.

Unit 2: Sustainable materials
Ssustainable materials-eco friendly materials and energy saving materials: strawbale-cardboards-recycled plastics-recycled tyres-papercrete-sandbags-solar collectors.-selection and use of timber from sustainably managed forest. Sustainable building materials technology options. Application and concept of green design.

Unit 3: Product design elements
Human factors and ergonomics analyze furniture forms and different products based on ergonomics-material working parameters and visual perception of products as a single form and as a system in a given space. Models and prototyping of the designed products to understand anthropometry.

Unit 4: Principles of product Design
Principles of furniture design-functional aspects-ergonomics-physiological and biological aspects of design-parameters of various types of product forms-implication of stacking-transportation requirements on the design.

Unit 5: Accessory Design
Stylistic development of decorative accessories from the past to present with insight into technological advances and the influences of social- economic and political factors on their design. Brief study of period room settings with the context of decorative accessories complementing the architecture and interior design.

REFERENCES:

- Laura Slack- What is product Design? Roto Vision publishers- 2006
- Treena Crochet and David Vleck- Designer‟s Guide to Decorative Accessories- Prentice Hall- Ist edition- 2008.
- Michael Ashby- Kara Johnson- Materials and Design: The Art and Science of material selection in product design- Butter Worth Heinemann- 1st edition- 2002.
- International Design Yearbook- 1995: Furniture- Lighting- Tableware- Textiles and Products- Books Nippan- 1996.
- Karl. T. Ulrich- Steven D. Eppinger- Product Design and Development- McGraw-Hill Education Singapore; 4th edition- 2007
- William Lidwell- Kritina Holden- Jill Butler -Universal principles of Design- Rockport publishers- 2003.

DESIGN STUDIO II:
TOY DESIGN

Unit 1: Introduction
Stages of child development - Observation of children at play - Education for sustainability - Sustainable development -Education for sustainable development - Analysis of the educational universe in the area of sustainability - Methodology for toy design -Evaluation of the proposed methodology - Toy design methods considering sustainable design goals- What is a Toy?- Basics of Product Design- Course Logistics

Unit 2: Birth of the Modern-Connections through Color and Design
Creative Practices and Responses-Drawing and Building Form-Foundation Studio - Conceptual Problem Solving and Brainstorming -Introduction to Visual Culture-Life Drawing I-Life Drawing II-Ways of Knowing-Writing in the Digital Age.-Child Psychology- What is Play- Play Classification- Play Affordances- Child Development- Innovation- Association Mapping- Crossing Products- Theme Introduction

Unit 3: Games and Game Theory
Juvenile Anatomy and Ergonomics-Package Design Senior Liberal Studies Capstone-Toy Design V/VI-Toy Industry Practices- Creative Action Learning Studio- Methods and Materials of Production I/II.

Unit 4: Product Materials and Safety Considerations
Computer Graphics in Toy Design- Soft Toy and Doll Design- Hard Toy: Design- Hard Toy: Engineering- Photorealistic Product Communication- Energy- Power- Batteries- Electricity- Motors- Estimation

Unit 5: Professional Practices in Toy Design
Computer-Aided Advanced Drafting for Product Design- Games- Licensed Product Design- Business Practices for the Toy Industry- Internship: Toy Design- Project: Design- Estimation Results- Sketch Model Feedback- Aesthetics- Form- Color- Sensory Design- SolidWorks Basics- Vacuum Forming- and Part Finishing- What?- Why?- and How? of Portfolios- Documentation

REFERENCES:

- John Thackara (Ed)-Design After Modernism•(Beyond the object)- 1989
- Victor Margolin (ed)-design discourse (History-theory-•Criticism)-the university of Chicago Press- 1989
- Powell-Jim;Postmodernism for beginners-•orient Longman- India-1998
- Jencks-Charles;Post-Modernism:A New Classicism in •Art and Architecture-Academy editions- London- 1987
- McKim- Robert;Experiences in Visual Thinking- •Publisher: Brooks/Cole Publishing Company- 1980

DESIGN STUDIO I LAB:
INTERIOR HABITAT LAB

Design an interior habitat considering the following instructions

- Design a interior built environment according to standards and application of design philosophies and historical studies
- Prepare user needs, client brief and location analysis
- Prepare a research pack and technical pack based on the design after mind mapping zoning and ideation.
- Prepare a Visual schematic process colour boards and mood boards for your unique solution.

DESIGN STUDIO I LAB:
MATERIAL EXPLORATION LAB

Make a material exploration board considering the following instructions

- Collect materials from the market for various finishes of wall- floor and roofing
- Preparation of sample boards using the collected samples and mount them for exhibition
- Understand hands on processes for the use of materials in the market through workshops
- Generate prototypes using different materials and combinations of more than one material.

INTERIOR ENVIRONMENTAL ANALYSIS AND MATERIAL ANALYSIS: INTERIOR ENVIRONMENTAL ANALYSIS

Unit 1: Water Supply in Buildings
Standard of portable water and methods of removal of impurities- Consumption or demand of water for domestic purposes- Service connection from mains- House-service design- tube well- pumping of water- types of pumps- cisterns for storage

Unit 2: Building drainage
Layout- Principles of drainage- Trap type- materials and functions- Inspection chambers- Design of Septic tanks and soak pits- Ventilation of house drains Anti-syphonage or vent pipes- One and two pipe systems Sinks- bath tub- water closets- flushing cisterns- urinals- wash basins- bidet- shower panel etc.

Unit3: Basic concepts and system components in Air conditioning
Vapour compression cycle – Compressors – Evaporators – Refrigerant control devices – Electric motors – Air handling units – Cooling towers.

Unit 4: Air conditioning systems
Window type and packaged air conditioners – Chilled water plants – Fan coiled systems – Water piping – Cooling load.- Air-conditioning systems for different types of buildings – Duct lay out etc.

Unit 5: Fire safety
Mechanism of fire spread in building and prevention – Fire safety standards – Concepts in fire protection- Fire fighting installation and requirements - Heat sensitive detectors – Smoke detectors – Automatic water sprinkler system- Foam systems. ELECTRICAL SYSTEMS Single/Three phase supply – Protective devices in electrical installation — ISI Specifications - Types of wires- Wiring systems and their choice – Planning electrical wiring for building interiors – Main and distribution boards- Typical Electrical layout for interiors.

REFERENCES:

- M.H.Lulla- Air conditioning
- V.K.Jain- Fire Safety in Buildings.
- Peter templeton & Saunders – Detailing for architectural acoustics – Architectural press-
- S.C. Rangwala- Water supply and sanitary engineering- Charotar publishing house
- Charangith shah- Water supply and sanitary engineering - Galgotia Publishers
- A Kamala & DL Kanth Rao- Environmental Engineering- Tata McGraw – Hill publishing Company Limited
- Technical teachers Training Institute (Madras)- Environmental Engineering- Tata McGraw – Hill publishing Company Limited
- Marrimuthu- Murugesan- Padmini- Balasubramanian- Environmental Engineering- Pratheeba publishers

INTERIOR ENVIRONMENTAL ANALYSIS AND MATERIAL ANALYSIS: SPECIALIST MATERIAL ANALYSIS

Unit 1: Introduction to materials
Wood - Soft and hardwood- plywood- laminated wood and particle boards – properties- manufacture & uses.
Synthetic Materials – Different types of Glass- their properties- manufacturing processes and uses. Plastics – injection molding & other manufacturing methods- etc.
Fabrics – textile- Jute- leather etc. different types and their uses

Unit2: Building Material Components
Components of a building indicating a separate hatch for each material-Foundation – brick footing- stone footing & Reinforced cement concrete column footing-concrete flooring- plinth beam & floor finish-superstructure- brickwork with sill- lintel- windows & sunshade- Flat RCC roof with weathering course- parapet & coping.

Unit3: Structural Materials
Structures – Components of a load bearing wall & RCC /stone slab roof system -RCC /stone beams- columns and framed structure-Structural glass- Aluminium sheet roofing- partititons- Tensile materials for roofing

Unit 4: Tiled roofs
Types roofs like sloped & hipped roof with different types of specialist tiles-Types of sloping roof –lean to & couple roof with Mangalore tiles- country tiles & pan tiles.

Unit 5: Paints
Paints– Protective coating paints- types of paints – water paints- dis-tempers- cement based paints- emulsion paints- anti corrosive paints etc. – composition- functions- preparation and application method- painting on different surfaces- defects in painting etc
Varnishes (oil and spirit) – various types – French polish- damp proofing finishes etc. and methods of application

REFERENCES:

- Bindra- S.P. and Arora- S.P. Building Construction: Planning Techniques and Methods of Construction- 19th ed. Dhanpat Rai Pub.- New Delhi- 2000.
- Moxley- R. Mitchell‟s Elementary Building Construction- Technical Press Ltd.
- Rangwala- S.C. Building Construction 22nd ed. Charota Pub. House Anand- 2004.
- Sushil Kumar. T.B. of Building Construction 19th ed. Standard Pub. Delhi- 2003.
- Chowdary- K.P. Engineering Materials used in India- 7th ed. Oxford and IBH- New Delhi-1990.
- Rangwala- S.C. Building Construction: Materials and types of Construction- 3rd ed. John Wiley and Sons- Inc.- New York- 1963.
- Francis D. Ching- Building Construction Illustrated- Wiley publishers- 2008.
- W.B.Mckay –Building construction Vol1 –Longmans- UK 1981
- W.B.Mckay –Building construction Vol 3 –Longmans- UK 1981

DESIGN STUDIO II LAB:
COMMERCIAL INTERIOR LAB

Create a commercial interior considering the following instructions
1. Application of design principles in retail/ other commercial projects.
2. Adhering to the standards of human dimensions by studying anthropometrics and ergonomics
3. Display design and branding and re-branding
4. Spatial cognition and way finding

DESIGN STUDIO II LAB:
INTERIOR PRODUCT DESIGN LAB

Create an interior product considering the following instructions
1. Selection and prototyping of product related to the interior built environment
2. Spatial allocation for the product and surrounding built environment
3. Anthropometry and ergonomics study and also environmental psychology
4. Location and installation analysis.

DESIGN STUDIO II LAB:
PRODUCT DESIGN LAB

Create a product considering the following instructions
1. Creation of a framework domain for the selected typology of the product
2. Application of product design philosophies and principles and theories
3. Annotating by studying history of product design
4. Packaging and branding of the product

DESIGN STUDIO II LAB:
TOY DESIGN LAB

Create a toy considering the following instructions
1. The principles and theories of toy making
2. Point of original solution and innovation
3. Exploration of toy making materials and their applications
4. Packaging for the designed toy and branding.

SEMESTER - IV
DESIGN STUDIO III:
SMALL SCALE CONTRACT

Unit1: Introduction to Estimation

Estimation – definition- purpose- types of estimate- and procedure for Estimating the cost of work in order to implement an interior design project or to make products related to interior design like furniture- artifacts etc.

Unit 2: Rate analysis and estimation format

Rate Analysis – definition- method of preparation- quantity & labour estimate for woodwork- steelwork- Aluminum work- glass & its rate for different- thickness & sections- finishing (enamel paint- duco paints- melamine- DU coats- Hand polishing- veneering and laminating) for walls & ceilings. Electrical & plumbing products- wiring- ducting etc.- and laying of tiles & wall paneling in the estimate format of the project.

Unit 3: Detailed Estimate

Detailed Estimate – data required- factors to be considered- methodology of preparation- abstract of Estimate- contingencies- labour charges- bill of quantities- different methods of estimate for interior design works- methods of measurement of works.

Unit 4: Costing of fixtures and fittings

Cost of the following items: electrical fitting like- luminaries- fan- cables- switches etc.- tiles in skirting & dado- cement plaster- joinery in wood- steel & aluminum- painting to walls – cement paint- oil paints - distemper acrylic emulsion- enamel paint painting to joinery- varnishing- French polishing plumbing equipments like piping- shower panels -cubicles- tubs- Jacuzzis - taps- motors- fountains- false ceiling of
aluminum panels- steel & wooden frame work- thermocol etc. wall paneling of ceramic tiles & other tiles of materials suitable for the same- partitions made of materials like aluminum wood- steel etc

Unit 5: Introduction to Specification

Specification – Definition- purpose- procedure for writing specification for the purpose of calling tenders- types of specification. Specification for different item related to interior design project – woodwork for furniture window frames & pelmets- partitions etc also of materials like steel aluminum glass of various kind. Wall paneling & false ceiling of materials like aluminum- steel- wood- electrical- plumbing- aircontioning & fire fighting equipments.

REFERENCES:

- M. Chakraborti- .Estimation- Costing- Specification and Valuation in Civil engineering.
- Dutta- Estimating and Costing- S. Dutta and Co.- Lucknow 1983
- 1.S. C. Rangwala- Elements of Estimating and costing- Charoter publishing House- Anand- India- 1984.
- The interior designers guide: to pricing- estimating budgeting. By Theo Susan

DESIGN STUDIO III:
INDUSTRIAL INTERIOR PRODUCT DESIGN

Unit 1: Design Studio

Design Definitions and Design Spectrum- Product Attributes –Function and Emotion - Product configurations and Component relationships (component matrix) - Introduction to Design Research - Product Analysis – Diachronic- Synchronic - Understanding and Analyzing contexts- parallel situations- future situations -Understanding modularity and modular systems – 3D lattice and structures-Design of Modular System –abstract design.

Unit 2: Nature Of Materials And Processes

Properties and usage of thermoplastics- thermosetting plastics. -Process of selection and applications of plastics for engineering and consumer products.-Design limitations and specific advantages of plastic molding processes-Assembly and Decorative techniques for plastic product Manufacturing processes and assembly techniques for ferrous and non ferrous metals-Concepts of structure and costing- Significance of form in structural strength of products- Influence of materials and processes on product aesthetics-Industrial finishes for plastic- wood and metals- Properties and use of rubber- ceramics and glass-Properties of natural materials like wood- bamboo- cane- leather- cloth- jute and paper and their use at craft and industrial levels.

Unit 3: Exploration of Form

Introduction to 2 dimensional and 3 dimensional-form-radii manipulation in 2d and 3d form. Exploration of surface textures in different materials-2 and 3d form transition. Exploration of -form to develop imagination and insight. Use of metaphors to generate new-forms. Concept of family of forms-Introduction to 3Dgeometry.Basic 3D Forms: cube- tetrahedron- octahedron etc. and their imaginative use in generating complex forms and structures. Use of combinatrics as a method of 3d form generation- form- material and process relationship

Unit 4 : Media Investigation and Communication Methods

Interpretation and application of semiotic theory for media investigation- methods and modes of analysis-design research for product systems and communication - intermodal and multi disciplinary and qualitative methodologies.

Unit 5 : **Applied Ergonomics**

Product design- Analysis of Mme system design-How to assess the interface design- Design methodology-Body dimensions and its application in design-dimensional optimization for the population and use of percentile-The musculo-skeletal system And joint motion study-Human body follows the principle of lever-Basic model on calculation of biomechanical stresses on our body- Effect of stresses imposed on body. Design from the view point of biomechanics - Work posture analysis- static and dynamic work-the visual- auditory and thermal environment and their impact on design- Design for the physically challenged-Controls and display Psycho physiological -aspects of design-research techniques in ergonomic data generation

REFERENCES:

- Jones- J.C: Design methods: Seeds of human futures- Wiley inter science- London- 1992.
- Gorb- Peter- Ed. Living by Design- Lund Humphries- London 1978.
- M.M Andereasen- Integrated Product Development- Ifs Publications Ltd. /

- Springer Verlag- Berlin- 1987
- Thompson R.:Manufacturing processes for design professionals- Thames & Hudson-
- London 2007
- Ashby- Michael; Johnson- Kara; Materials and Design: •the Art and science of Materials election in Product Design- Publisher: Butterworth-Heinemann 2002

DESIGN STUDIO III:
INDUSTRIAL PRODUCT DESIGN

Unit 1: History and culture of design
History and critique of contemporary design-sciences of communication-representation methods and tools-science and technology of materials-design semiotics-drawing and geometric representations-design physics.

Unit 2: Basic design
Composition -introduction to product design-systems design-product systems design-production technologies-production design-product life cycle evaluation

Unit 3:Analysis and representation of shape and object
Multimedia-multimedia elements-sciences and language of perception-image graphic design-image graphic elaboration.

Unit 4: Sociology and anthropology of design
Ergonomics-project representation and communication techniques-operative technical drawing-perception theory-representation techniques and languages.

Unit 5:Design Thinking
Product Specifications and User Interface- Systematic Product Design Process- Creativity and Concept Generation –Prototyping- Experience and Service Design Design for Environmental Sustainability- Product Architecture and Modularity- Product Testing and Validation- Product Development Economics- Product Management

REFERENCES:

- FKimberly Elam-Geometry of Design: Studies in Proportion and Composition-Princeton Architectural Press- 2001
- Thompson- Darcy Wentworth; Bonner- John Tyler (Editor); On Growth and Form by D”Arcy Thompson Doczi- Gyorgy; Power of Limits- Publisher: Shambhala; Reissue edition- 1981
- Lawlor- Robert; Sacred Geometry: Philosophy and Practice (Art and Imagination)-Publisher: Thames & Hudson- 1989
- Kepes- Gyorgy; Language of Vision- dover Publications- 1995

DESIGN STUDIO III:
TOY PRODUCTION

Unit 1: Overview of Production System

Objectives of Operation Management- Scope of Operations Management- Operations Management Frame work- Relationship of operations with other Functional areas- Manufacturing Vs Service sector- Operations Decision making- Production Design Process and Process choices - Reliability- Maintenance and safety engineering - Failure Rate- Mean Time Between Failures (MTBF)-Mean Time To Failure (MTTF)- Bathtub distribution- Down time- Repair time- Availability- Series-Parallel Structures- Redundancy- Reliability Allocation- Mechanical Reliability- Failure Mode Analysis. Maintenance and Maintenance Engineering Objectives- facts- Maintainability Terms and Definitions- Importance- Preventive Maintenance- Corrective Maintenance- Total Productive Maintenance- Reliability Centered Maintenance- Inventory Control in Maintenance.

Unit 2:Industrial economics

Micro Economics -Demand and supply analysis - elasticity of demand - problem demand forecasting - Consumption Laws - of Diminishing Marginal Utility Consumer Surplus - Macro And Monetary Economics Keynesian Employment Theory - National Income computation - General Management Contributions of Fayol and Taylor – Managerial functions - Types of Business organizations - Types of Business organizations - Marketing management - Introduction: Definition- in importance- Evolution - Buyer Behavior - Market segmentations Personnel Management- Personnel management: - Definition- Scope- Task - Recruitment and selection - Training and Development - Job Evaluation Merit rating - wage and salary administration - time rate- Piece rate- Halsey and Rowans plane - trade union - Collective bargaining - workers Participation in Management - Industrial Fatigue and Accident- Performance appraisal system.

Unit 3: Work Design and Facility Planning Methods study

Motion and time study- and productivity - micro motion and macro motion study - Ergonomics. Work measurement - techniques of work measurement - time study - production study. Facility layout - steps in facility location study - layout types and analysis. Layout design process - systematic layout planning - analysis - designing the layout - Assignment model Computerized layout planning - CRAFT- ALDEP and CORELAP - Sustainable Manufacturing - Concept of Triple bottom line- Environmental- Economic and Social Dimensions of Sustainability- Sustainable Product Development – Various Phases. Tools and Techniques – Environmental Conscious Quality Function Deployment- Life cycle assessment- Design for Environment- R3 and R6 cycles- Design for Disassembly. ARTIFICIAL INTELLIGENCE AND EXPERT SYSTEMS Aspects of intelligence and AI - heuristic search - logic programming and reasoning - automatic programming-scope of AI-in manufacturing - components of intelligent manufacturing- Requirements of AI languages - Languages Lisp and Prolog - simple programs Knowledge engineering- protocol analysis - fuzzy logic - Semantic networks- Learning systems - inference engine Vision programmes - factory vision systems - machine learning Features of Experts systems - applications in manufacturing planning and control.

Unit 4: Rapid prototyping tooling and manufacture

Introduction- Need for the compression in product development- History of RP systems- Survey of applications- Growth of RP industry AGILE MANUFACTURING Types of Production- The Agile Production Paradigm- History of Agile Manufacturing- Agile

Manufacturing Vs Mass Manufacturing- Agile Manufacturing Vs Mass Customization- Agile Manufacturing Research Centers. Agile Practices- Agile practice for product development - Manufacturing agile practices - understanding the value of investing in people- Concept models of Agile Manufacturing- Infusing managerial principles for enabling agility.

Unit 5: Entrepreneurship development

Concept Of Entrepreneurship-Definition and concept of enterprising - profile of an entrepreneur - need scope and characteristics of entrepreneurs Project Identification-Methodology of project identification - short listing and zeroing on product/service - problems in project evaluation Marketing-Market share - distribution - sale strategies - certification agencies - term finance -source and management working capital Assistance To Entrepreneur-Small industries development in India and its concept - ancillary industries - starting a small scale industry Accounting Principles-Accounting principles - conventions and concepts - balance sheet - profit and loss account - accounting rate of return- payback period-SSI duty practice.

REFERENCES:

- Gupta- S.C. -Fundamentals of Statistics - Himalaya Publishing House - Sixth Revised Edition - April-2004.
- Medhi-J. - Stochastic Processes - New Age International(P) Ltd.- Publishers-2ndEdition-2004
- Lawn- Sustainable Development Indicators in Ecological Economics- Edward Elgar Publishing Limited.
- d. S. Asefa- The Economics of Sustainable Development- W.E. Upjohn Institute for Employment Research- 2005.
- Goldman S L- Nagal R N and Preiss K- “Agile Competitors and Virtual Organizations”- Van Nostrand Reinhold- 1995.
- Brian H Maskell- “Software and the Agile Manufacturer- Computer Systems and World Class Manufacturing- Productivity Press- 1993
- Krajervaki and Ritzman- "Operations management"- Addison Wesley Pub. Co- 2007 Norman Gaither- Greg Frazier- Operations Management- Thomson Learning- 9th Edition-2002. 3.Monks J.G. Operations Management- McGraw Hill- 2004
- EDI-1 Faculty and Experts- A Handbook for new entrepreneur- Entrepreneurship Development Institute of India- 1986.
- Saravanavel- Entrepreneur Development- Ess Pee Kay Publishing House- Madras-1987.

DESIGN STUDIO IV:
RETAIL / EXHIBITION INTERIOR

Unit1: Planning for Retail / Exhibition
Anthropometrics – types of Shop layouts Modular units. - Materials used in counters- shelves- worktops- their comparative study - Lighting & colour scheme – natural & artificial light.

Unit 2: The art of selling
Displays/products/marketing- design of display units- design of boutiques- showrooms - Concepts in modern day Retail interiors – materials & finishes – colour- texture & pattern.

Unit 3: Product display
Windows/internal displays/hierarchy of product display/power of visual - communication/graphics - Exhibition spaces – display for exhibition - Lighting design for commercial spaces – task/display/atmospheric/focal lighting - Coloring commercial spaces – coding/decoding/visual communication- Design of commercial Environments such as Malls- Shopping Arcades Etc. - Advertisement- Definition- importance- classification- features of good advertisement

Unit 4: The hardware system
Shape- connotations of form- sign mounting considerations- sign size considerations- sign lighting overview- sign materials overview- basic sign materials- electronic message displays- stock sign hardware systems- sign materials and codes- overview of coatings and finishes applied to signs. Merchandise Display-Interior display- principles and requirements- types of merchandise - display- window display- meaning- principles and factors and rules. Window arrangement-art and psychology- principles - techniques in window display.

Unit 5: Signage Design
Eyelevel- light- Fonts- typographical systems and type area- pictograms- arrows- color – contrast- language- systems- tones- Coding- privacy and protection- Room identification. Concept of commercial art and merchandising- Meaning- classification- development recent trends- art- architecture and display. Consumer and Merchandising - Meaning- significance and classification of consumer- Consumer rights and responsibilities- classification of consumer goods- elements involved in merchandising- grading- branding- labelling- packaging and standardization. Merchandising and distribution- Importance- selection of channels- channels of distribution of goods- techniques of merchandising- selling methods.

REFERENCES:

- Designs for 20th century Interiors – Fiona Leolie- VH Publications- London.
- Interior Design; The New Freedom- Barbaralec Diamonstein- Rizzoli International Publications- New York- 1982.
- Interior Colour by Design- Jonathan Poore- Rockport Publishers- 1994.
- Worldwide Interiors – International Federation of Interior Architects & Designers- Rikuyo-Sha- Japan- 1987.

DESIGN STUDIO IV:
INTERIOR PRODUCT & FURNISHING DESIGN INNOVATION

Unit 1: Product Interface Design
Investigations and study of visual- functional and ergonomic requirements of control and display interfaces- Legibility of display elements- character of different typefaces and their readability-Study of the process of building interactions-

Unit 2: Interdisciplinary approach The course involves an interdisciplinary approach including user Centered design Process- Activity Analysis-structuring of Content-participatory design-experiential Ideation-scenario Building- Linear and Animatic- Story boarding- soft Physical Prototyping techniques- The students will collaboratively design an interactive product interface

Unit 3: Soft furnishings
Soft furnishings -Meaning and importance- Types of furnishings - carpets- rugs- cushion cover- slip cover- window treatments - curtains- draperies- blinds and shades. Cushion-cushion covers- and slip covers- bed linens- and Table linens.

Unit 4: Accessories
Accessories - meaning- definition- need- types of accessories -functional- decorative- both functional and decorative. Relationship of furnishings with space- selection and use of furnishings –functional and decorative.

Unit 5: Ikebana
Flower arrangement – importance- basic shapes- types-line- mass- line and mass- miniature-floating- styles - Ikebana. Care and maintenance of soft furnishings–stain removal- mending and darning- laundering- storage of furnishings

REFERENCES:

- Crosby-Fletcher and Forbes; A- Sign Systems •Manual- studio Vista- London- 1970.
- W.H Mayhall;Machines and Perception in • Industrial design-studio Vista- Ny- 1968.
- Norman-donald- Adesign of everyday •things- MIt ress- 1990
- Nielsen- Jakob- Usability Engineering- San diego-CA:AcademicPress-1993.
- Deborah J. Mayhew- The Usability Engineering Lifecycle: Practitioner‘HandbookforUserInterfaceDesign- AcademicPress/MorganKaufmann-1999

DESIGN STUDIO IV:
PRODUCT DESIGN INNOVATION

Unit 1: Introduction to Design
Design -Integrating Studies -Introduction to Production Engineering and Management-Technology Concepts-Entrepreneurship: Theory and Practice

Unit 2: Research Methods for Product Designers
Design Emotion and Experience-Design Interaction-Integrating Studies -Product Development-Production Techniques

Unit 3: Human Centered Product Design
Electrophysiology and its application in product design. Design and human behavior- use of eye movement recording in visual behavior analysis-ergonomics of human energy-expenditure and its application-Psycho-physical analysis of product-paired comparison test – Product analysis.

Unit 4: Product semantics
Theories in product semantics and later focuses on categorization theory as a framework for product semantics. Different theories on object categorization are reviewed to develop a logical design approach to deal with product form and its meaning. The influencing factors for product form are modeled to include the concept of product identity.

Unit 5: Integrated Engineering Business Project
Designer attributes. Setting up a design office. Finding clients. Business correspondence. Brief and -briefing. Letter of contract. Professionalism and ethics. Costing -design and fee estimation. Management of design Process- Human-Factor in managing design / team work. Design evaluation. Patent and design registration laws / procedure.

REFERENCES:

- Farr- Mihael; Design Management- Hoddar • and stoughton- London- 1966.
- Goslet Dorothy- The Professional Practice • of design- Batszford- London 1971.
- Pulos-Arthur J-Contract Selling Industrial • Design Services- Office of Design-
- Department of Industry-trade and Commerce-ottawa- 1975.
- Abbott Howard-safer by design-•design Council- London- 1987.
- Brustein David & Frank Stasiowski-Project•Management for the design-Professional- Whitney Library of design- New york- 1982.
- staurt W rose- Achieving excellence in your design •Practice- Whitney Library of
- design- New york- 1987.
- Oakley-Mark (Ed.)-Design Management –a Handbook •of Issues and Methods- Basil Blackwell Ltd. 1990.
- Case studies by design Management Institute-USA

DESIGN STUDIO IV:
TOY DESIGN INNOVATION

Unit 1: Introduction to Design
Design -Integrating Studies -Introduction to Production Engineering and Management-Technology Concepts-Entrepreneurship: Theory and Practice visual- tactile and functional characteristics of Toys and related products.

Unit 2 : Research Methods for Toy Designers
Design Emotion and Experience-Design Interaction-Integrating Studies -Product Development-Production Techniques Development of Art & Design - History of Art and how it affected the development of Design - Principles of Product Design - Types of products and marketing a product - Visual language- thumbnails- orthographic projections- concept boards

Unit 3: Human Centered Toy Design
Electro physiology and its application in product design. Design and human behavior- use of eye movement recording in visual behavior analysis-ergonomics of human energy-expenditure and its application-Psycho-physical analysis of products.

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REFERENCES:

- Farr- Mihael; Design Management- Hoddar • and stoughton- London- 1966.
- Goslet Dorothy- The Professional Practice • of design- Batszford- London 1971.
- Pulos-Arthur J-Contract Selling Industrial • Design Services- Office of Design-
- Department of Industry-trade and Commerce-ottawa- 1975.
- Abbott Howard-safer by design-•design Council- London- 1987.
- Brustein David & Frank Stasiowski-Project•Management for the design- Professional-Whitney Library of design- New york-1982.
- staurt W rose- Achieving excellence in your design •Practice- Whitney Library of design- New york- 1987.
- Oakley-Mark (Ed.)-Design Management –a Handbook •of Issues and Methods- Basil Blackwell Ltd. 1990.
- Case studies by design Management Institute-USA

DESIGN STUDIO IV LAB:
INTERIOR PRODUCT AND FURNISHING DESIGN INNOVATION LAB

- Explore the different product accessories and furnishings available in the market
- Create scaled models of products and represent it in 2D and 3D drawings
- Prepare inspiration and conceptualization models of the products and represent furnishing design in this as a scaled model arriving from the above two
- Create a design by taking inspiration from all walks of life, create new blended from the old.

DESIGN STUDIO IV LAB:
PRODUCT DESIGN INNOVATION LAB

- Explore the design of products and material suitability for the chosen product.
- Create a product considering the various parameters involved in designing and prototyping.
- Design a branding and packaging for the designed product
- Explore the durability and workability aspects of the product through new ideation and cultural, contextual expressions.

DESIGN STUDIO IV LAB:
RETAIL/ EXHIBITION INTERIOR LAB

- Design a retail space / kiosk in an existing place or a brief specific site with understanding and mapping the user.
- Create material mood, colour and crtical evaluation boards for the interior.
- Create 2D, 3D and physical model of project brief

DESIGN STUDIO IV LAB:
TOY DESIGN INNOVATION LAB

Design a user centric toy considering the following instructions

- context to culture and psychological context with its user interface.
- Incorporate branding & packaging detail
- To explore local craft and art and take inspiration, form a toy for age specific group.
- Understand the concept of user mapping and get inspired to do innovation.

ALLIED PAPER 4:
LIGHTING DESIGN

Unit 1: Introduction

Lighting and vision- basic units- photometry and measurement. Effects of good lighting- considerations for good lighting- brightness- glare- contrast and diffusion. Economic issues of lighting.

Unit 2: Quality and quantity of different sources of light

Daylight- incandescent- fluorescent- halogen- electric gas discharge high discharge- neon- cold cathode- mercury- sodium vapor etc. lighting levels- visual field. Survey of lamps available in the market with cost and technical specifications.

Unit 3:Day light

Advantages- admitting daylight- controlling daylight – multiple glazing- orientation- window treatments- potentials of day lighting as an energy resource - Artificial lighting - color characteristics of artificial lighting- integration of day lighting with artificial lighting- lighting controls- intelligent building systems for lighting- switches- dimmers.

Unit 4: Planning lighting

General aims- lighting needs- calculation of lighting levels- intensity levels- energy and installation costs and other factors- selection of fixtures- location and placing of fixtures.

Unit 5: Lamps and lighting fixtures

Floor- table and desk- wall mounted- ceiling units- built in lighting- miscellaneous types- decorative lighting- spot lighting- task lighting- underwater lighting etc.

REFERENCES:

- Wanda jankowski- Lighting : In Architecture and Interior Design- pbc intl- 1995.
- Moore Fuller- Concepts and practice of Architectural Day lighting- Van Nostrand Reinhold co.- New York- 1985.
- David Egan. M. Concepts in Architectural lighting Mcgraw Hill Book company- New York- 1983.
- Coaton J.R. and Marsden - A.M. Lamps and Lighting- 4th Edition Arnold.
- Advanced Lighting Controls:Energy Savings- Productivity- Technology and Applications Edited by Craig DiLouie
- Gary Steffy – Architectural Lighting Design
- Architectural Illumination by Dr.R.G.Edkie- Ekweera Prakasan.

ALLIED PAPER 4:
COMMERCIAL MODEL MAKING

Unit 1: Basics of Modeling
Basic concepts associated with the development of models based on principles and elements of design- model creation- light sources- positioning of the eye- rendering- importing and modification of 2d plans to 3d models. Use modeling techniques based on which to create rendered assemblies-orthographic drawings- auxiliary views- animations and details from 3-dimensional models.

Unit 2: Standards and fundamentals
Principles of top-down design used in product creation to include techniques- design standards for mass production- dimensioning- assembly techniques and features. Special focus on cast and injection molded parts and tooling verification. Introduction to the principles of drafting to include terminology and fundamentals- including size and shape descriptions- projection methods- geometric construction- sections- and auxiliary views.

Unit 3: Materials
Materials for model making include paper boards like snow white- foam board- epoxy board- mount board- card paper- textured and coloured paper- papier mache- photomontage- Plaster of Paris- Resin and various types of adhesives

Unit 4: Techniques and tools
Tools those are available to model design parametrically to illustrate the construction of geometrical relationships among complex shapes. Focus on hands-on techniques that can be applied to the design process- to extend the efficiency and productivity of work during the process. Tools may include the laser cutter- a pair of scissors to thermacol heat cutters - 3D printers etc.

Unit 5: Outcomes
Commercial modeling techniques - rendered assemblies- orthographic drawings- auxiliary views- 3-dimensional models- Creation of surfaces of the completed assembly style- features using creative casting design with rules for mass production.
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REFERENCES:

- Arturo Tedeschi AAD_Algorithms-Aided Design Edizioni Le Penseur 2009
- Carlos R. Barrios Parametric Design in Architecture: Fundamentals- Methods- Applications- Birkhauser- Jan 2016 ISBN: 9783034612982
- Robert Woodbury- Elements of Parametric Design- Routledge- 2010
- Laurence King- Parametric Design in Architecture By Wassim Jabi September 2013 ISBN 9781780673141
- Design patterns for parametric modeling -- Robert Woodbury- Woodbury 2010

PROJECT AND DISSERTATION PROPOSAL LAB

- Generate Multiple Ideas, Concept, Story
- Research
- Choose the appropriate Medium & techniques for the story
- Choose a research title related to the project which need to be done later
- Generate the proposal for the research title
- Do the introduction and literature review for the chosen title

SEMESTER - V
RESEARCH METHODOLOGY

Unit 1:Introduction to Research
Meaning of Research – Objectives of Research – Characteristics of research - Types of Research – Research Approaches – Significance of Research – Research process – criteria of good Research – Research methods Vs Methodology – research and scientific methods – how research is done

Unit 2: Reviewing the literature
Search for existing literature – review the literature selected – develop a theoretical framework – develop a conceptual framework - Research Problem – Selecting the Problem – Defining the Problem – Research Design – Need for Research Design – Different Research Design – Research Proposal – Formats of research proposal.

Unit 3: Variables
Definition of variables – difference between a constant and variable – types of variable – Hypothesis- definition of a hypothesis – functions of hypothesis – Characteristics of hypothesis – types of hypothesis - Sampling Design – Implications of Sampling Design – Steps in Sampling Design – Criteria of selecting a sampling procedure – Types of Sampling Design.

Unit 4: Methods of Data collection
Collection of Primary Data – Observation Method- Interview Method - Questionnaires Method - Other methods of data collection – Collection of secondary data – selection of Appropriate Method for data collection - Processing and Analysis of Data – Processing Operations – Elements and types of analysis – statistics in research

Unit 5:Interpretation and Report Writing
Meaning of Interpretation - Technique of Interpretation – significance of Report Writing - Different steps in writing report – layout of the research report – types of research report – Evaluation – intervention – development – evaluation process - types of evaluation from a focus perspective.

REFERENCES:

- Richard Rickitt and Ray Harryhausen- “Special Effects - The History and Technique-
- Billboard Books”- Second edition- 2007
- Colin Dempsey- “The Ultimate Encyclopaedia of Mythical Creatures- Barnes and
- Noble Books”- 2006
- Steve Katz - “Film Directing Shot by Shot”- Michael Wiese- 2004
- Mitch Mitchell -”Visual Effects For Film and Television”- Focal Press- First Edition

NEGOTIATED PROJECT LAB

Create a Negotiated Project considering the following instructions

- Prepare a project proposal relevant to the dissertation topic.
- Create a detailed research pack showing relevant analysis on anthropometric data regarding the project along with literature study for the topic.
- Create detailed case study report pertaining to the above proposal
- Create detailed drawings related to the specifically mentioned topic as working drawings and submit a relevant tech pack
- Prepare the bill of quantities for the project
- Create a scaled model for the proposed project plan
- Present a neat visual development pack for the proposed project.

REFLECTIVE VISUAL JOURNAL (RVJ)

Unit 1: Format of the visual journal

The RVJ (Reflective Visual Journal) can be anything like a sketchbook or notepad that is wirobound and presented as leaves of drawings- sketches- annotations critical observations- judgemental remarks and so on.

Unit 2 : Annotation and Analysis

The RVJ is containing remarks in all forms- colour coding will help look at the information in the RVJ in an organised manner. Sticking notes on the RVJ and annotating the pictures that are stuck already gives a smooth idea of your thought process.

Unit 3: Critical pathway

Critical evaluation - philosophical pathways - theoretical compositions in qualitative research methodologies.

Unit 4: Preferences

Boolean - like-dislike decisions on what preferences mean in designing an interior environment or any other design criterion

Unit 5: The entries in the RVJ

The RVJ entries- cognition- ideation- qualitative/quantitative decisions in research. Critical analysis.

REFERENCES:

- Beata Sirowy, Phenomenological Concepts in Architecture ; Towards a User-Oriented Practice; ,2010
- Barraza, Hansy Better, Where are the Utopian Visionaries? Architecture of Social Exchange, Periscope Publishing, Pittsburgh, 2012
- Bergdoll, Barry & Christensen, Peter, Home Delivery. Fabricating the Modern Dwelling, The Museum of Modern Arts, New York, 2008
- Hoffman, Armin; Graphic design manual, Principles and Practice. Arthur Niggli Publisher, Multilingual edition. 2001
- Proctor, R.M.; The principles of pattern, Dover Publications, 1990

DISSERTATION LAB

Submit a Dissertation document considering the following instructions

- Preparation of 3000 to 4000 word essay on the chosen topic which has been narrowed down after much research into chosen field of operation.

Elective 1:
CONCEPT AND INSPIRATION LAB

Create a concept considering the following instructions

- Ideation through keywords and mind mapping
- Ideation through sketching from still life as well as memory
- Creating inspirational models in the early stages of design development
- Developing the concept through exploring the philosophies and theories
- Research on chosen topic- client brief and location and site analysis
- Learning to deconstruct objects and situations around oneself and development of conceptual models on which will be based the final scaled model.

Elective 1:
INNOVATION AND TREND LAB

Create a concept considering the following instructions

- Exploration of mathematics in design reaching out to other disciplines too like art-music and literature which may have telling influence on design parameters
- Innovation through multi and cross disciplinary interventions from creative processes like game theory
- Exploration of philosophies and how to apply them in design
- Profuse sketching and analysis of day to day design revelations from day to day events and from memory
- Learning concepts like deconstruction/ minimalism and decoding them to adapt and innovate according to the latest trends
- Studying the Market for material innovations and taking inspiration from the work of peers
- Detailed study of materials and their applications in the latest trends
- Tracing design trends and innovations through constantly educating oneself from literature available around us.
- Hands on experimentation with model making facilitates and materials like clay and wax etc.

MODEL MAKING

Unit 1: Materials
Materials for physical models like snow white board- foam board- epoxy boards- hard board mountboard- card board- and many other materials like plywood- MDF- Plaster of Paris- Resin- clay. soap and wax and thermacol

Unit 2: Cutting
Types of cutters-Equipment for cutting - Laser cutter- 3d printer- thermacol heat cutter- Knifes of different sizes and long steel scale- cutting of different styles-Specialist cutting for model making.

Unit 3: Drawing for the model
Drawings for the model-the base drawing plan-elevtaion-sectional elevations-orthographic projections-axonometric and isometric.

Unit 4: Pasting
Types of adhesives - strong and light adhesives for pasting- araldite- anabond- fevicol- feviquick-.Methods of pasting

Unit 5: Finishing
Methods of finishing- coating layers of a mix of Plaster of Paris and adhesive - painting using poster colours- rendered with textures- monochromatic output-method of finishing-intricately cutting the edges.

REFERENCES:

- "Model Builder's Notebook: A Guide for Architects- Landscape Architects and Interior Designers" by Fuller Moore. McGraw-Hill companies- (August 1- 1990). ISBN 0070430268. Paperback: 138 pages.
- "Modeling Messages: The Architect and the Model" by Karen Moon. Monacelli. 2005. ISBN: 1580931286. Hardcover: 240 pages.
- "The Art of the Architectural Model" by Akiko Busch- Design Press. 1991. ISBN 0-8306-9969-4. Hardcover- 128 pages.
- FIGURE MAKING CAN BE FUN?!?" by Michael Brose. Perfect bound: 200 pages. Available from the website www.puppetsandprops.com
- "Model Making for Industrial Design" by Ralph R. Knoblaugh. McGraw-Hill. 1958. ASIN B0007FITGU. Hardcover: 276 pages

SEMESTER - VI
PROFESSIONAL PRACTICE

Unit 1: Role of Designer in society
Design Profession as compared to other professions. Difference between profession and business. IIID and other organizations related to design profession.
Designers approach to works- ways of getting works: types of works- works partly executed by other Designers. : various precautions to be taken before taking up the work- conditions of engagement between Designer and client: commencement of work.

Unit 2 : Issues of professional practice
Professional behavior- Ethics- Types of clients- Contracts- Tenders- Arbitration etc. as defined in terms of Design field and current day context. Career opportunities- styles of design practice- relationship between client and professional- type of fees- process of fees negotiations- billing methods- tax liabilities- contracts – types of contracts – item rate- labour- lumpsum- cost plus percentage etc.

Unit3: Designer's duties
Designer's relation with other parties connected with works such as client- contractor- sub contractors- consultants and authorities. IIID Code of professional conduct: scale of charges: units and mode of measurements- clerk of work and his duties- inspection of work- certificate of payment to contractor- bill of quantities- schedule of rates- tenders- public- limited and negotiated tender documents and allied formalities.
Preliminary knowledge of Consumer protection Act and other related acts on Designers.

Unit 4: Types of offices for design practice
Staff structure- filing of records- correspondence and drawings- maintenance of accounts- presentations in meetings- recording minutes of meeting.

Unit 5: Big Project
Role of consultants and coordination- liasoning between different consultants - Gannt chart - Pert and CPM.

REFERENCES:

- Indian Institute of Architects. H.B. Professional Practice - The Architects pub. Bombay.
- Namavati. H. Roshan. Professional Practice. 8th ed- Lakshani Book Depot- Bombay- 2001.
- Christine .M. Piotrowski - Professional practice for Interior Designers- 3rd edition- Wiley and sons- 2001.
- Cindy Coleman-Interior Design Handbook practice- Mc Graw Hill professional- ist ed- 2001
- Ronald Veitch- Professional practice for Interior Designers- Peguis Publishers- Limited- 1987.

DESIGN AND PORTFOLIO LAB

Design a Portfolio considering the following instructions

- Basics of Portfolio; Importance of portfolio - Elements in Portfolio - Types of Portfolio - The Effective Showcase - Development Techniques - Portfolio requirements - Portfolio Development Techniques Do's and Don'ts - Comments from Experts in the Field.
- Introduction to the Digital Portfolio - The Effective Digital Showcase - Production Techniques - Design document -- Different stages of digital media of their specialization -- Digital Portfolio Do's and Don'ts.
- Presentation: Preparing professional Theatre/TV/Film Portfolio Presentation Techniques - Professional presentation skill - Presentation Format and requirements.
- Marketing: Business Cards - Blog and Web pages - Importance of Business Cards- Blog and Web pages - Design and development of Business Cards- Blog and Web pages - Market analysis for using medium of marketing - Introduction to social networking and its importance
- Portfolio Maintenance - Components of a Portfolio - Audience- Tone- Range Format- Portfolio Guidelines - Portfolio Design - Portfolio Budget and Deadline planning - Publishing your portfolio - Portfolio enhancement.

MAJOR PROJECT

- Project and viva-voce

Elective II:
SPECIALIST MATERIAL EXPLORATION LAB

Explore the specialist material considering the following instructions

- Exploration of materials by conducting a market survey by visiting exhibitions and fairs in the city
- Collection of samples of these materials and developing a sample board for each category for display
- Understand how combination of two or more materials and their joinery works
- Making detailed specifications and estimation for the material collected
- Preparing detailed drawings of the material samples their application and joinery along with very detailed specifications.

Elective II:
PRODUCTS AND FINISHES LAB

Explore the product considering the following instructions

- Exploration of products and finishes that deal with air handling- fittings and fixtures- bathrooms- cladding- electrical- fencing- decking- floor covering- flooring-counter tops- kitchen faucets and sink.
- Identifying materials for counter tops- wall coverings- window coverings- doors and windows- gutters and hardware- insulation- lighting- landscape and metal work- concrete alternatives- paints and coatings
- Finding alternatives for panels- pavers- tiles- railings-roofing salvage- screens- shades
- Finding means of using solar energy wherever possible

Elective III:
CLIENT PRESENTATION LAB

Create a client presentation considering the following instructions

- Interaction with the client of the live project regarding the requirements of the project
- Obtaining from the client a brief which is suitable for design development
- Understanding the needs of the client and his/her requirements from the space
- Preparation of idea and mood board for the given brief
- Making a colour scheme and preparing a colour board for the same.
- Making mounted boards for expressing the visual schematic process
- Maintaining a critical journal which will be helpful for sending across the idea.
- Preparing initial set of technical drawings for presenting to the client substantiated by the inspiration and concept models.
- Preparing a good research pack which is self explanatory.
- All the above materials are to be presented to the client as a client presentation pack .

Elective III:
PROJECT MANAGEMENT LAB

- Design & Create shop drawing, manufacturing / executing and delivery.
- Create qualitative and quantitative data and act as a liaison between people onsite and client side
- Prepare charts for finance and time management through Pert and CPM
- Investigate into project genesis and delivery.

INTERNSHIP

The student is required to undertake internships in this semester and submit a report.